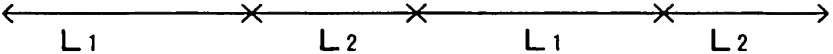


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SIGNAL SEQUENCE FOR MULTIPATH ESTIMATION

$$\begin{aligned}
 A_n &= a_0 \ a_1 \ a_2 \ \cdots \ a_{n-1} \quad (\text{ZCZ SEQUENCE}) \\
 &= \quad + \ + \ + \ - \ \cdots \ 0 \ 0 \ 0 \ 0 \ + \ - \ + \ + \ \cdots \ 0 \ 0 \ 0 \ 0 \ \cdots
 \end{aligned}$$


TRANSMISSION DATA

$$\begin{aligned}
 B_n &= b_0 \ b_1 \ b_2 \ \cdots \ b_{n-1} \\
 C_n &= c_0 \ c_1 \ c_2 \ \cdots \ c_{n-1} \\
 D_n &= d_0 \ d_1 \ d_2 \ \cdots \ d_{n-1} \\
 E_n &= e_0 \ e_1 \ e_2 \ \cdots \ e_{n-1} \\
 &\vdots \qquad \qquad \qquad \vdots \qquad \qquad \qquad \vdots \qquad \qquad \qquad \vdots
 \end{aligned}$$

FIG. 1

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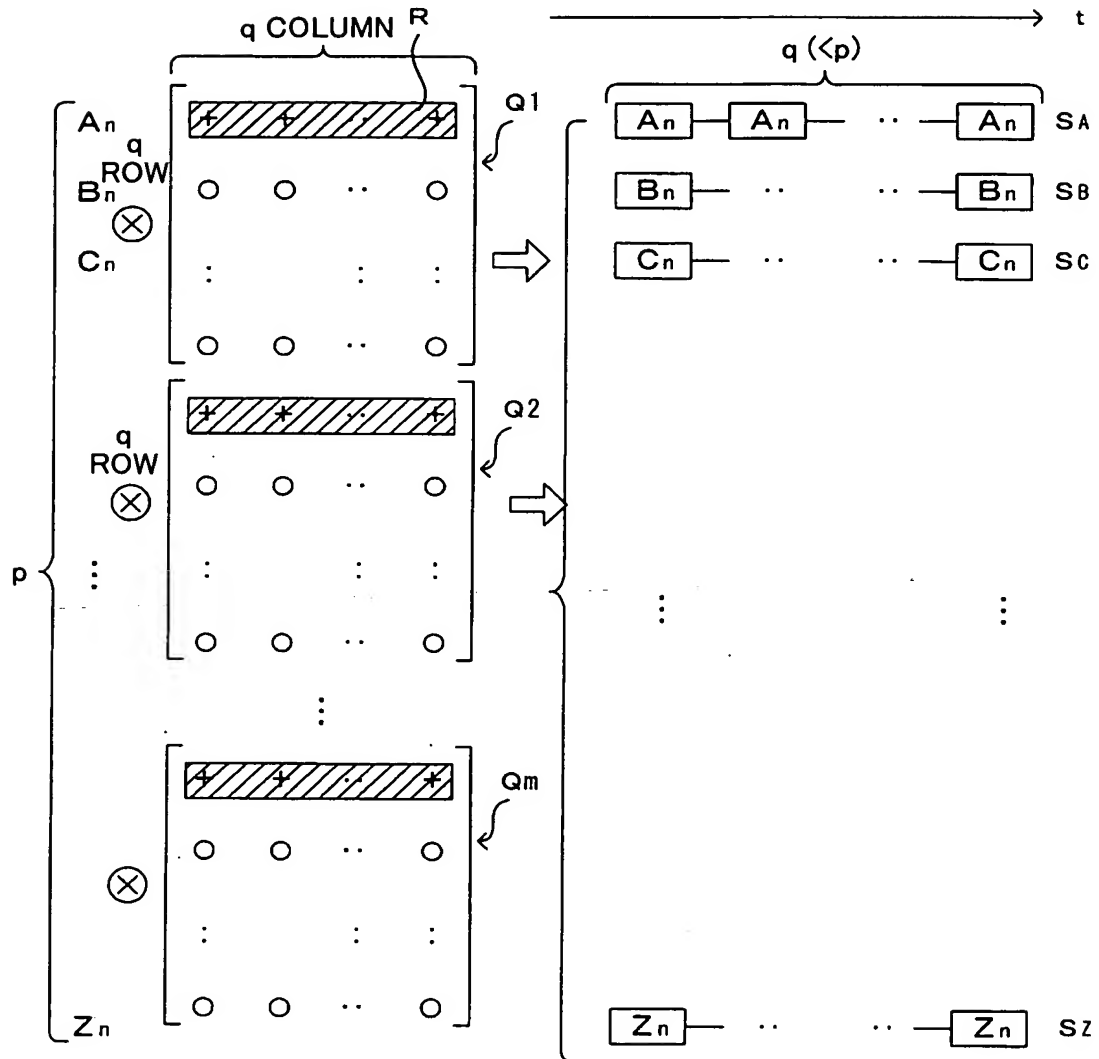


FIG. 2

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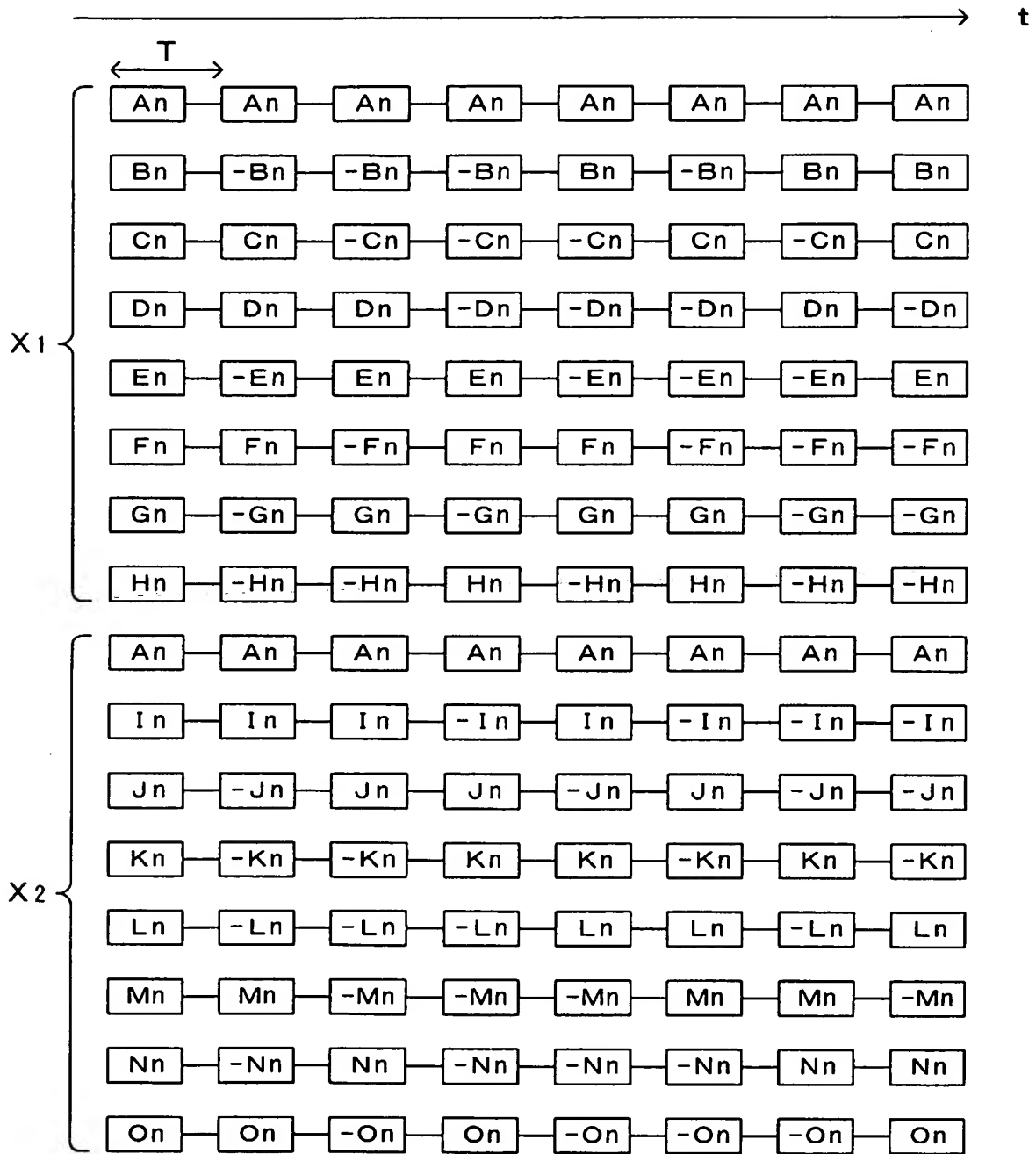


FIG. 4

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SIGNAL SEQUENCE FOR
 MULTIPATH ESTIMATION

$$\begin{aligned}
 A_n &= a_0 \ a_1 \ a_2 \ \cdots \ a_{N-1} \\
 B_n &= b_0 \ b_1 \ b_2 \ \cdots \ b_{n-1} \\
 C_n &= c_0 \ c_1 \ c_2 \ \cdots \ c_{n-1} \\
 D_n &= d_0 \ d_1 \ d_2 \ \cdots \ d_{n-1} \\
 E_n &= e_0 \ e_1 \ e_2 \ \cdots \ e_{n-1} \\
 &\vdots \\
 O_n &= o_0 \ o_1 \ o_2 \ \cdots \ o_{n-1}
 \end{aligned}$$

TRANSMISSION DATA

$$\begin{aligned}
 &\quad \quad \quad \uparrow \quad \quad \uparrow \quad \quad \uparrow \quad \quad \quad \uparrow \\
 &\quad \quad \quad t_0 \quad t_1 \quad t_2 \quad \quad \quad t_{n-1}
 \end{aligned}$$

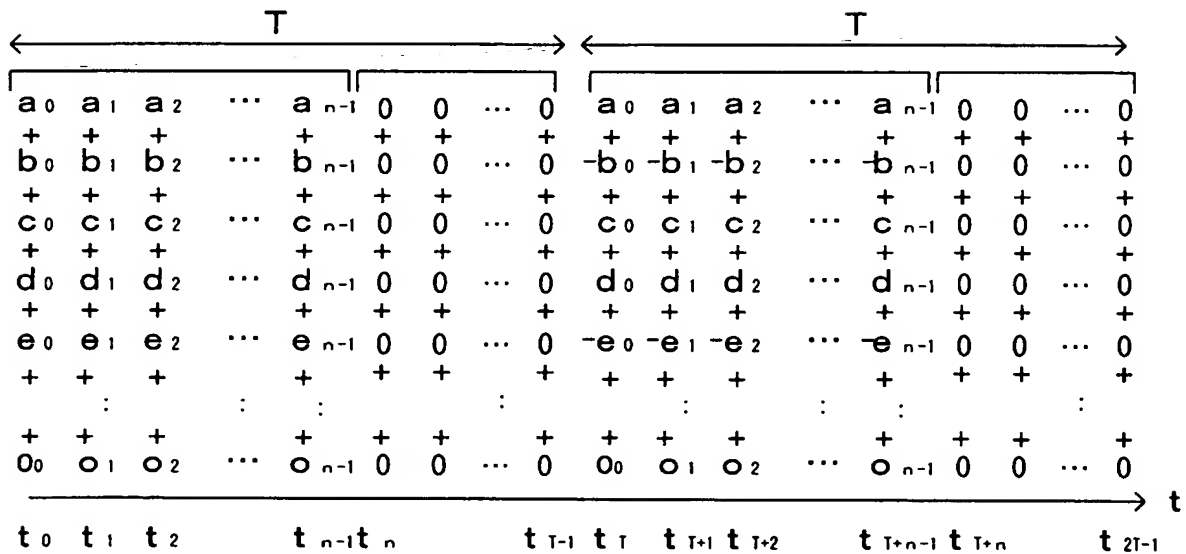


FIG. 5

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FIG. 6A

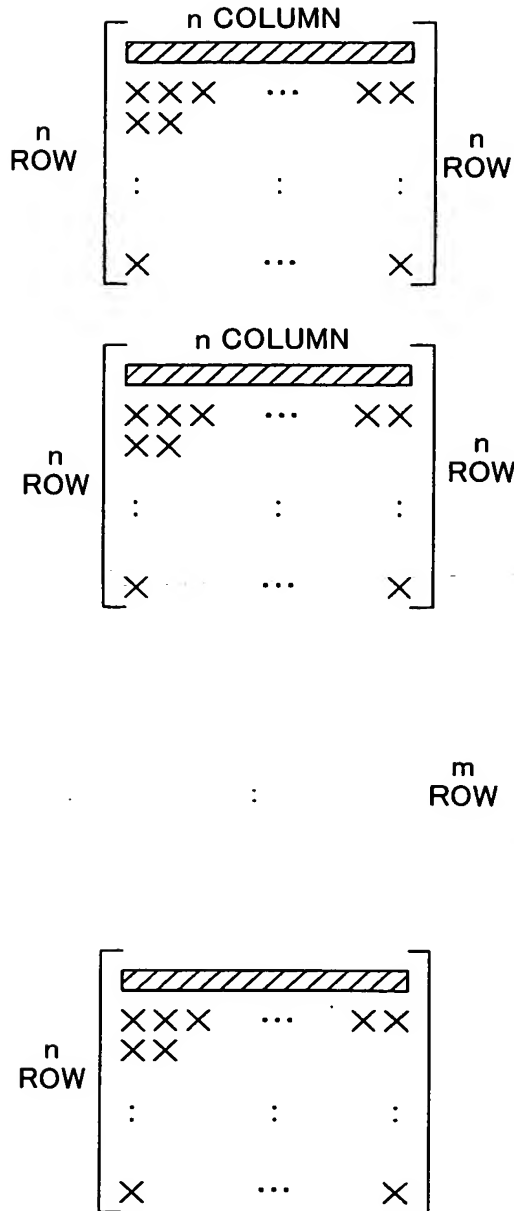


FIG. 6B

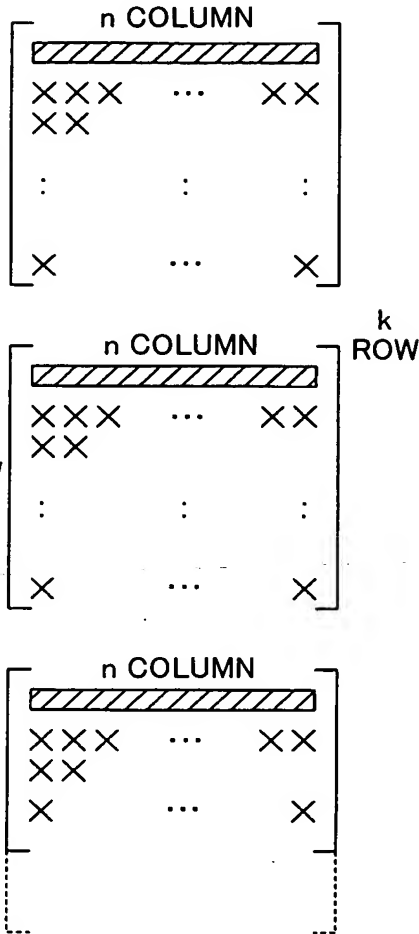
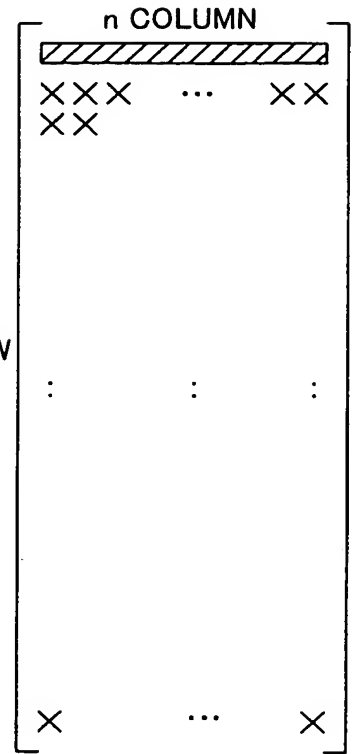


FIG. 6C



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FIG. 7A

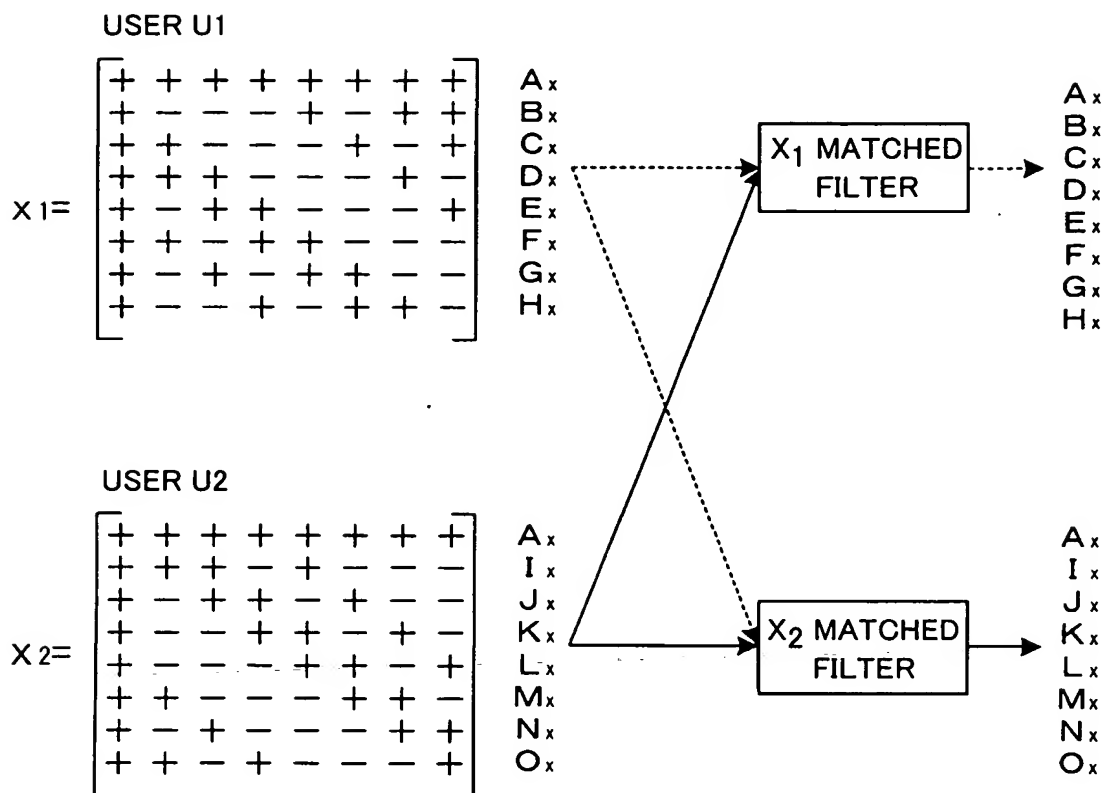
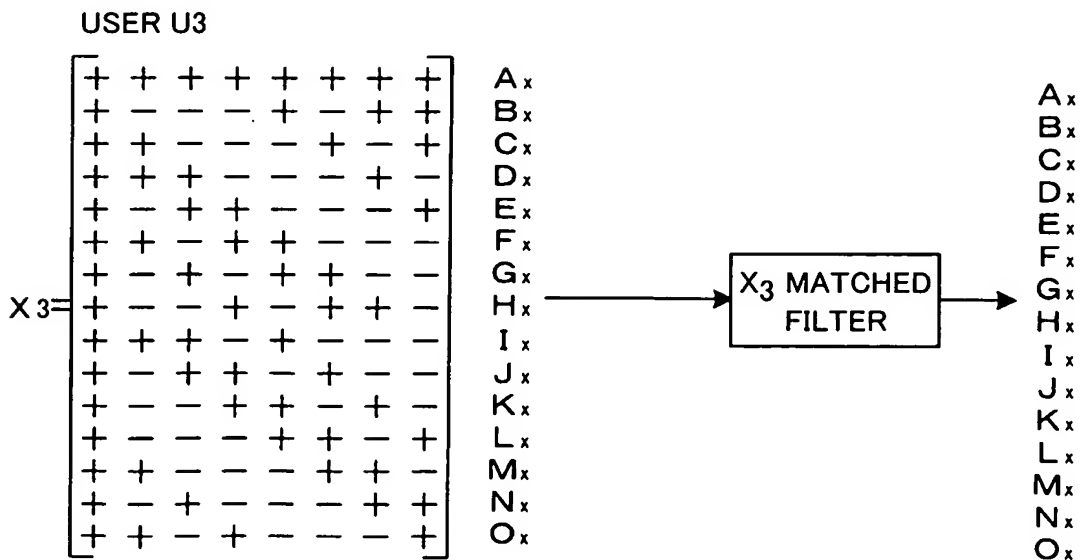


FIG. 7B



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FIG. 8A

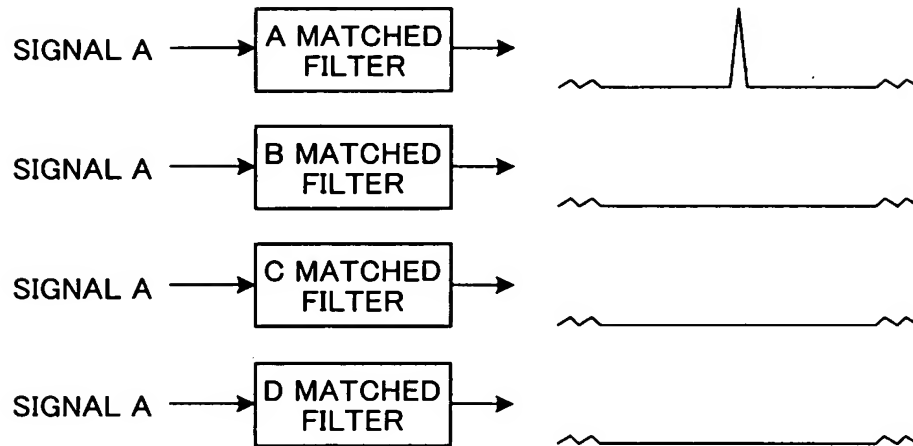
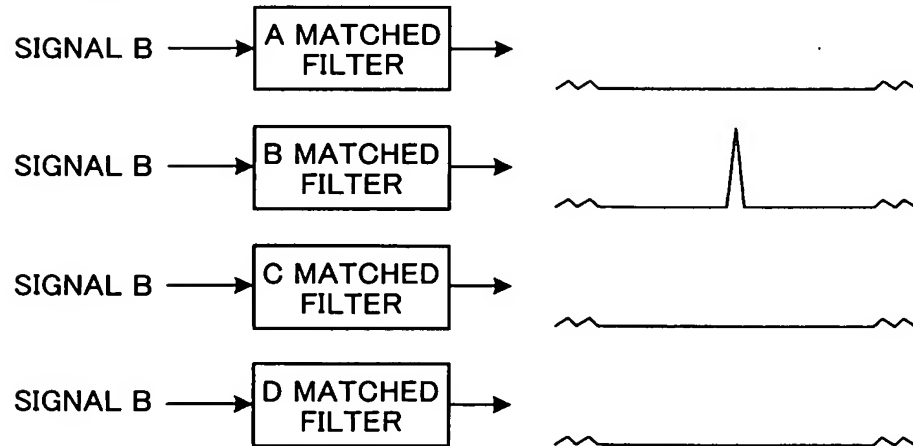


FIG. 8B



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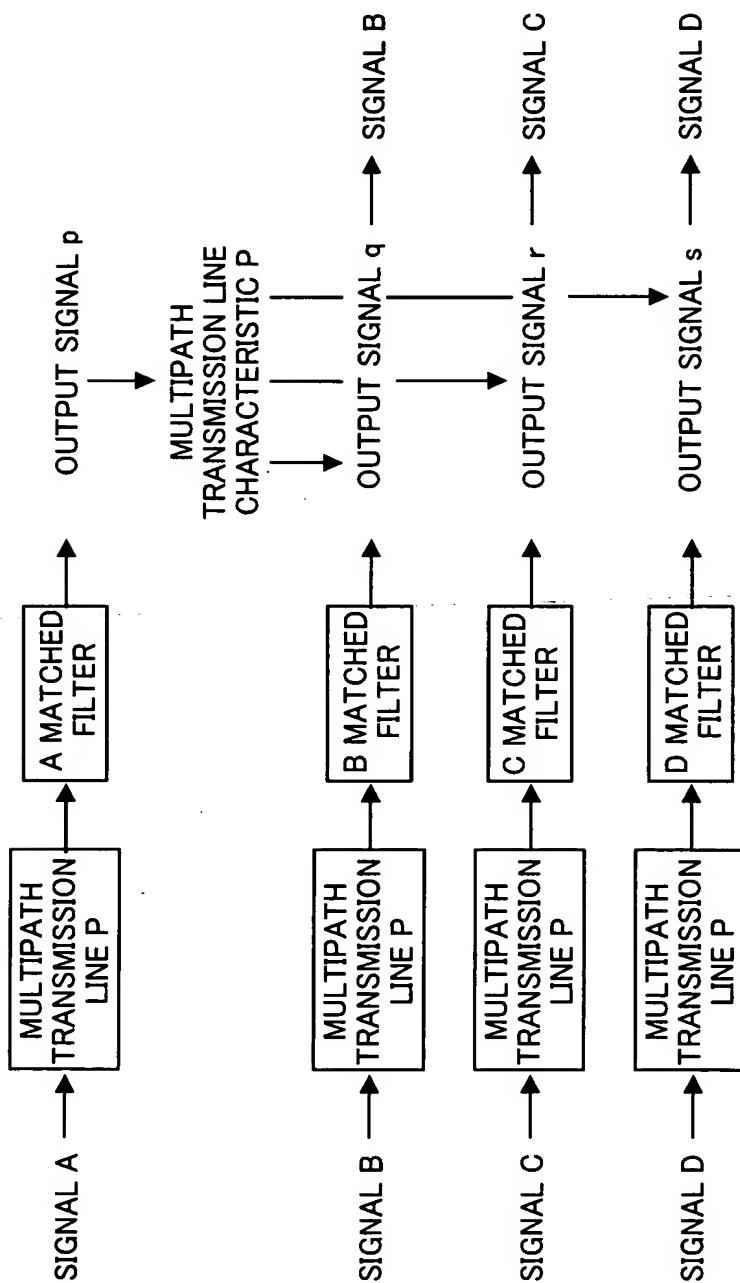


FIG. 9

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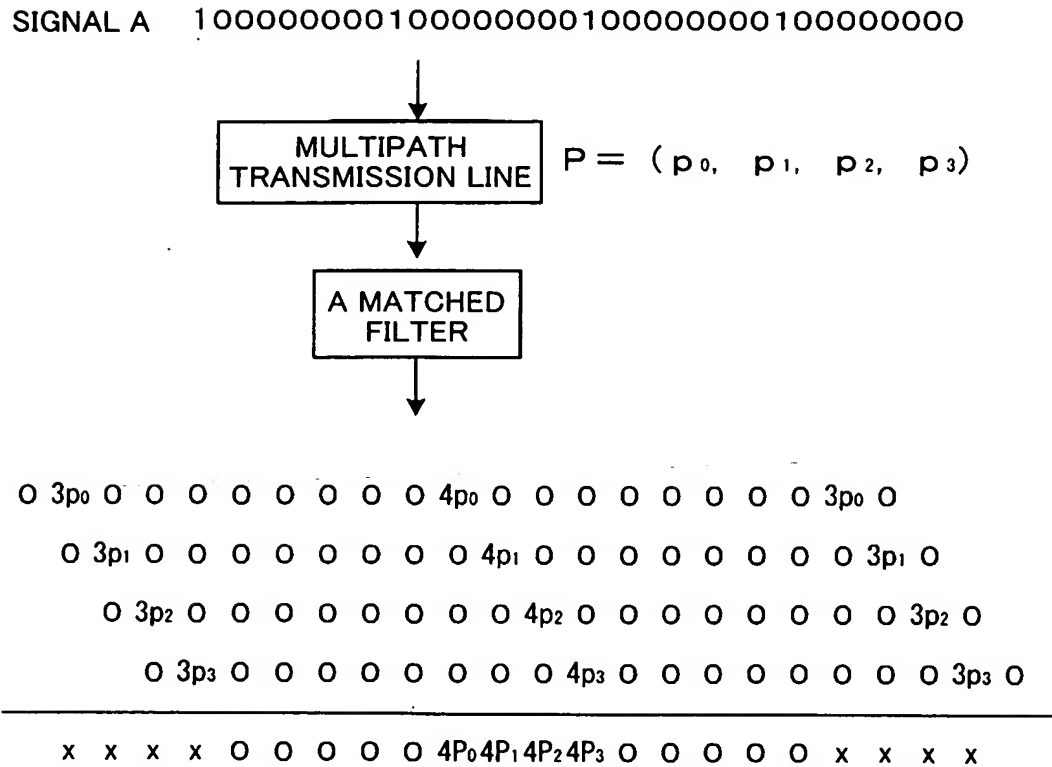


FIG. 10

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FIG. 11A

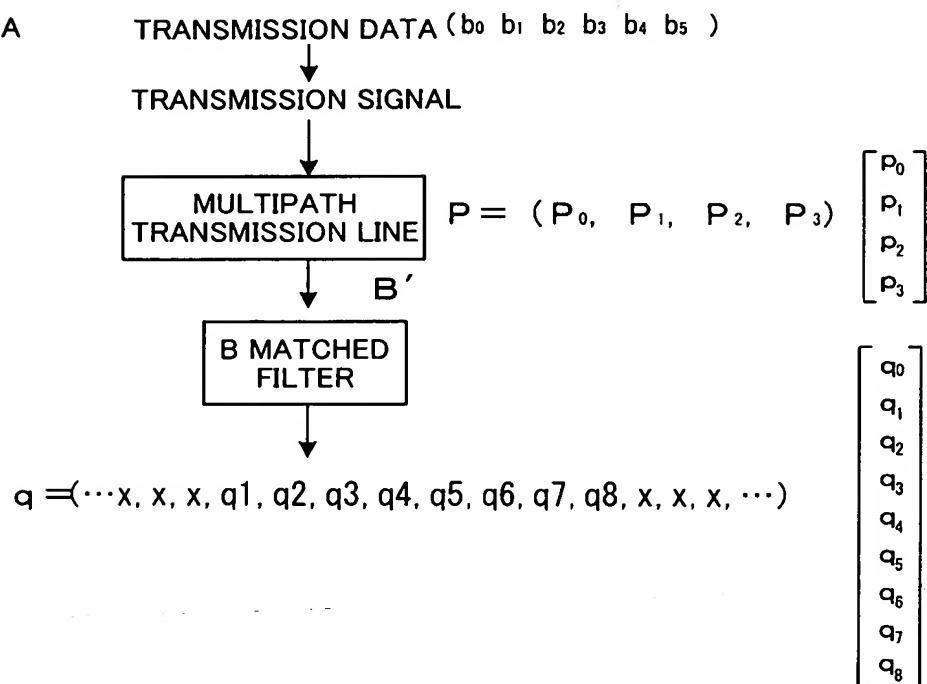


FIG. 11B

$$\begin{bmatrix} b_0 & 0 & 0 & 0 \\ b_1 & b_0 & 0 & 0 \\ b_2 & b_1 & b_0 & 0 \\ b_3 & b_2 & b_1 & b_0 \\ b_4 & b_3 & b_2 & b_1 \\ b_5 & b_4 & b_3 & b_2 \\ 0 & b_5 & b_4 & b_3 \\ 0 & 0 & b_5 & b_4 \\ 0 & 0 & 0 & b_5 \end{bmatrix} \begin{bmatrix} p_0 \\ p_1 \\ p_2 \\ p_3 \end{bmatrix} = \begin{bmatrix} q_0 \\ q_1 \\ q_2 \\ q_3 \\ q_4 \\ q_5 \\ q_6 \\ q_7 \\ q_8 \end{bmatrix}$$

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FIG. 12A A MATCHED FILTER

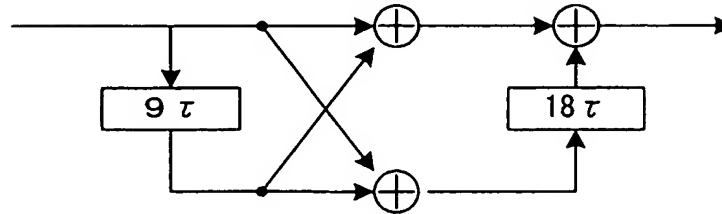


FIG. 12B B MATCHED FILTER

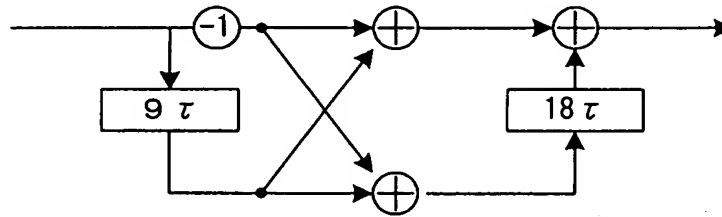


FIG. 12C C MATCHED FILTER

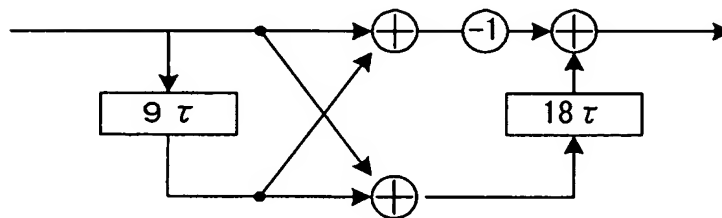
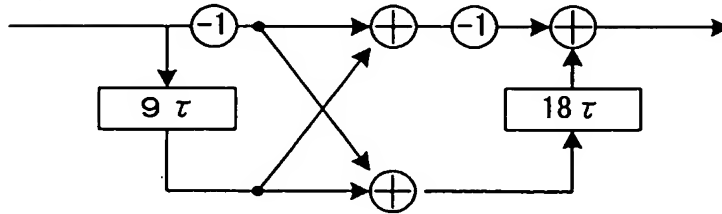


FIG. 12D D MATCHED FILTER



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SIGNAL SEQUENCE FOR MULTIPATH ESTIMATION

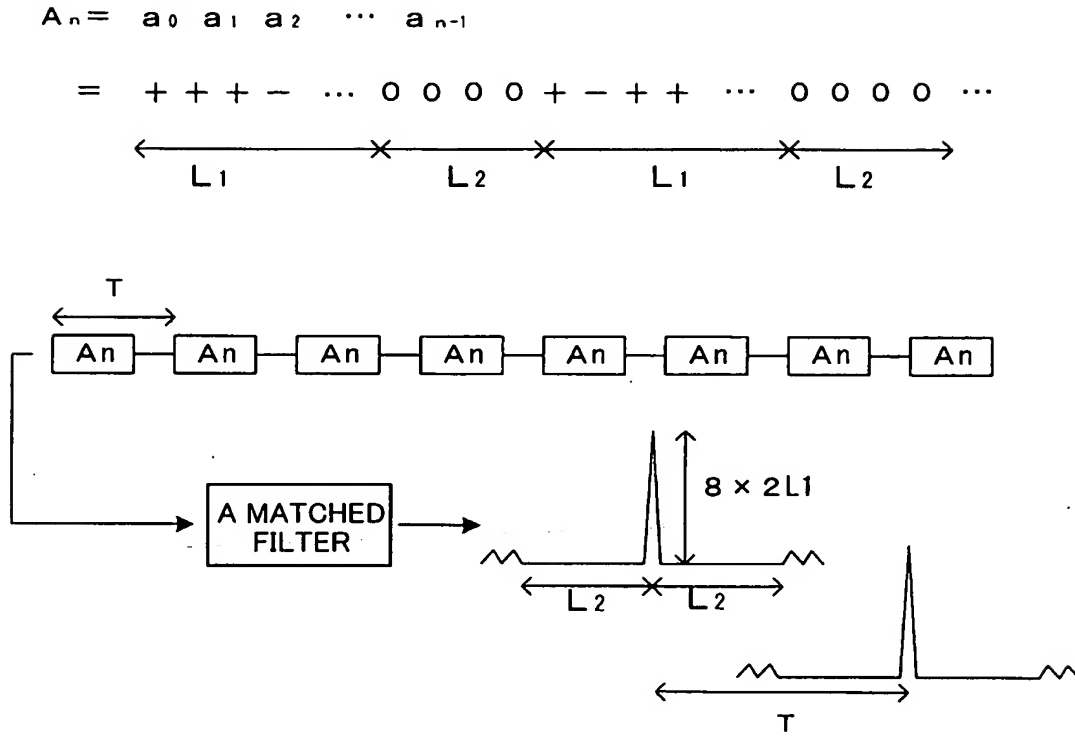


FIG. 14

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FIG. 15A

MULTIPATH CHARACTERISTIC
FAVORABLE

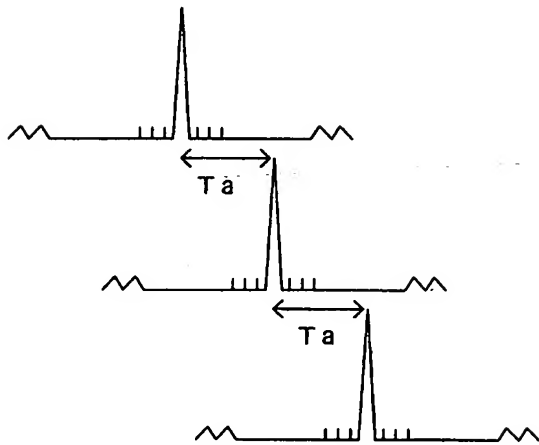
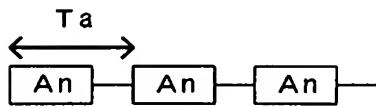
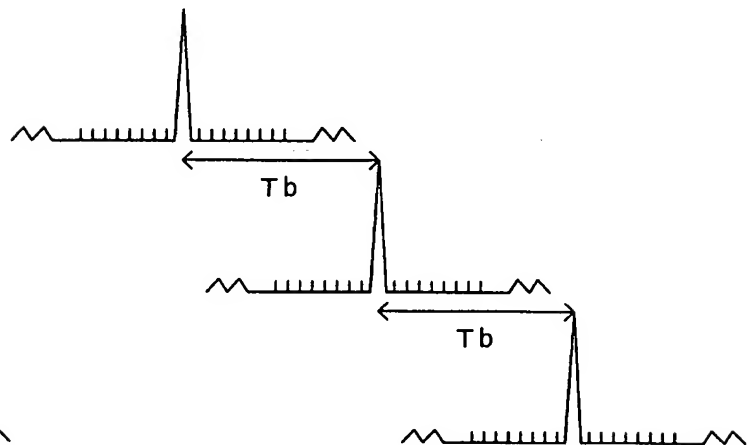
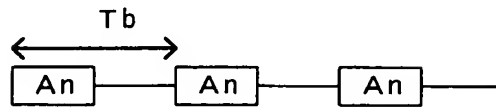


FIG. 15B

MULTIPATH CHARACTERISTIC
UNFAVORABLE



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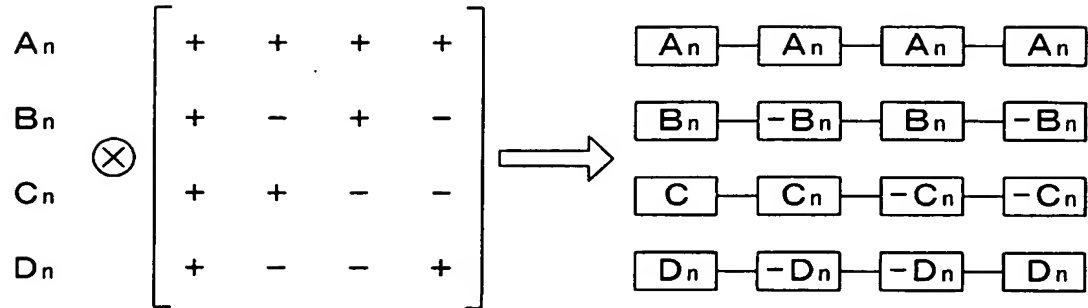


FIG. 16

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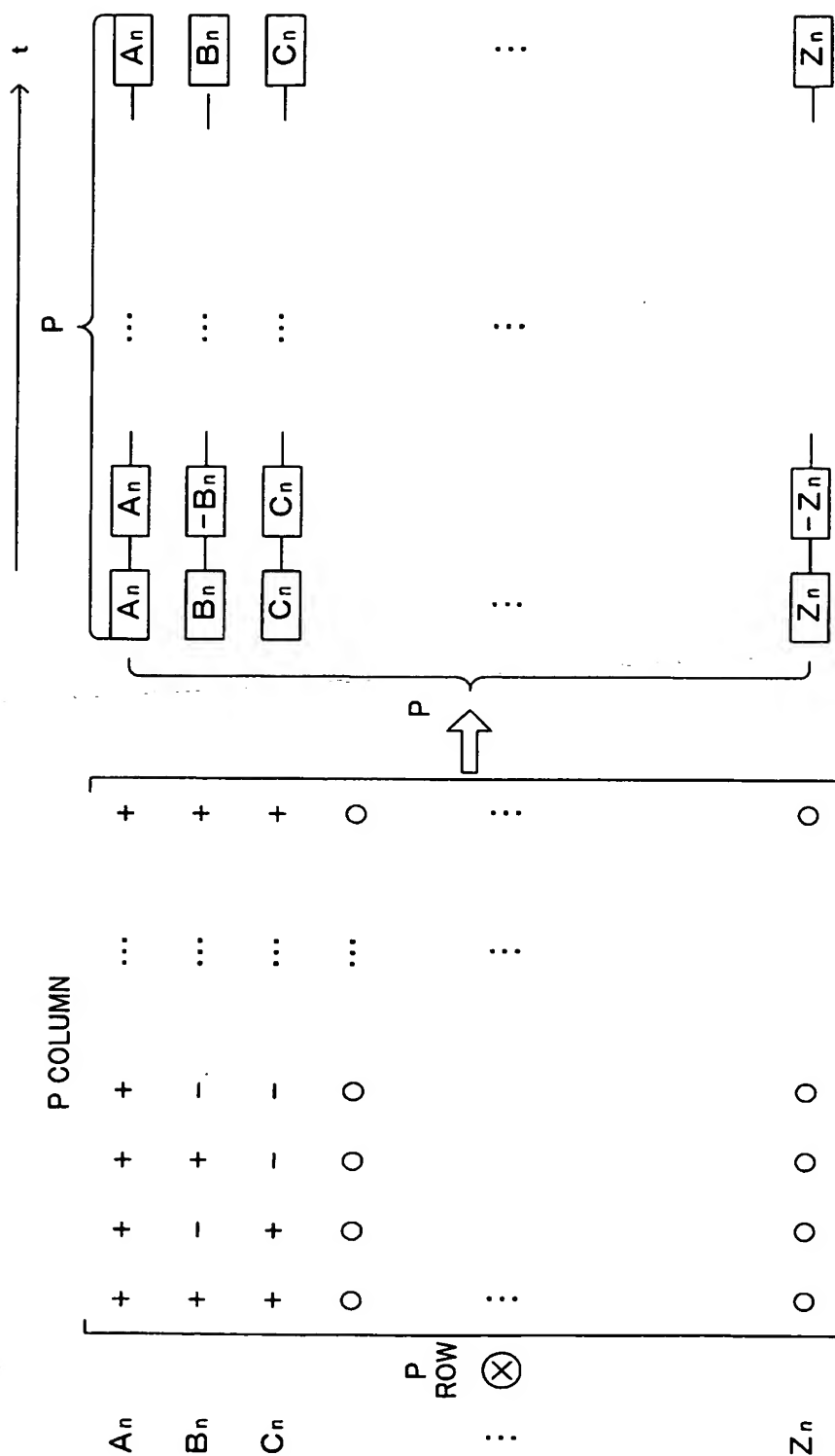


FIG. 17